

Broadband and the Hospitality Industry

By Douglas Rice

For most citizens of the developed world, Internet access has evolved from a novelty to a necessity over the past ten to fifteen years. Incessant growth in demand for bandwidth has been paralleled by increased capacity offerings from Internet Service Providers (ISPs), especially in the residential market.

Proliferation of e-mail, growing sizes of attachments, and the advent and refinement of multimedia content have continually raised the bar for bandwidth. Ten years ago, most homes with Internet access had bandwidth of perhaps 28 kilobits per second. Today, standard home offerings in many markets can start at 10 megabits per second downstream, and 50 megabits or more is not unusual – nearly a two thousand-fold increase in ten years. And while 50 megabits is arguably more than most users may ever need – that’s enough to support several simultaneous high-definition television broadcasts – it sets the expectation of virtually instantaneous response for any type of content, no matter how bandwidth-intensive.

The vast majority of hotels have lagged behind this trend, however. Many hotels have only a few megabits of capacity to share among hundreds of potential users in their guest rooms and administrative offices. This may be sufficient for light use such as e-mail, where only a handful of users may be active at any point in time. But with the recent growth in video streaming, hotel usage of Internet bandwidth has become heavily skewed toward the evening hours when guests are in their rooms, and those guests expect performance similar to what they have at home. The numbers simply don’t work: if just 10 guests are streaming video at one time, even at low quality, they will overwhelm the capacity of most of today’s hotel Internet connections. Not only will those particular guests be unhappy, but in most hotels, this will prevent other guests from even accessing their e-mail or doing light web surfing.

Historically, hotels have been reluctant to purchase sufficient bandwidth to meet peak demand, which can be many multiples of what is needed during the business day. But in many cases, this is outdated thinking based on “old” ISP pricing models where each megabit of capacity could cost several hundred dollars (or more) per month. In many markets, hotels can now buy bandwidth “on demand,” meaning that they can adjust their bandwidth to varying needs, throughout the day or for special events. In this model, it’s only necessary to pay for peak bandwidth when you need it. But relatively few hotels use this option, even where it is available, and there are still many geographical areas (even in developed countries) where it is not yet offered.

What Could You Do With Enough Bandwidth?

The day will come when hotels can get enough bandwidth, at a cost that can be readily recouped through a combination of room rates and user fees. It’s not a technology issue: it’s already been solved in the massive home market. It’s simply a matter of time until ISPs roll out the technology and infrastructure in different geographic regions; until their business models adapt to recognize that a 200-room hotel is not conceptually different than 200 homes; and until hotels adopt the new market offerings as ISPs bring them to market.

If your hotel had cheap, effectively unlimited bandwidth, how could you use it? There are three major applications areas, still basically in their infancy today, that appear likely to deliver enough value to provide competitive advantage.

1. **Entertainment Content.** Your guests will be able to get exactly the entertainment content they want – video, audio, or games – exactly when they want it. Many guests can already do this at home, and that sets their expectations for hotels. This content may include

- licensed programming from Internet-based sources, which may be free, subscription-based, or pay-per-view;
- high-value programming such as sports and concerts, as well as traditional cinema, television, and short subject programming;
- content stored elsewhere, such as on a guest's home DVR; and
- content that was broadcast live at an earlier point in time and stored on a network-based device.

An important benefit of this model is that over time, it will reduce and perhaps even eliminate the need for hotels (or their entertainment providers) to license their own content for guest viewing. Today, guests already have the ability to subscribe to or purchase what they want at home. Many of the content providers are already location-independent, and their subscription or pay-per-view content is available to guests anywhere, as long as they can get enough Internet bandwidth. And for those that are not, technologies such as SlingBox allow guests to save the content on their home DVR and access it while traveling.

2. **Videoconferencing and Meeting Technology.** The meetings business will be revolutionized by technology. Advances in technology have led to virtual meeting rooms so realistic that participants have actually tried to reach across the table to shake hands with attendees who were physically thousands of miles away.

To be sure, face-to-face meetings and conferences will always have important advantages over electronic ones, and hotels will always be a preferred venue for face-to-face meetings. But few meetings and conferences cannot be enhanced by videoconferencing and virtualization technology. Quality videoconferencing can allow a conference to import a guest speaker who is unable to travel, while preserving or even enhancing the audience interaction vs. a live speaker. Prospective conference attendees unable to attend in person can still get the benefit of the conference programming, and even some of the networking opportunities. Company meetings of geographically dispersed participants can be conducted through multiple face-to-face meetings at regional venues, joined electronically, which reduces the travel distance and time commitment for attendees while maintaining the personal interaction.

3. **Virtualization of hotel systems.** With ubiquitous and reliable bandwidth, the hotel data centre and related onsite staff can be substantially downsized, and perhaps even eliminated. Most applications, and even more so the skill sets and tools to manage their performance, can be run much more cost-effectively and reliably at higher volumes. Hotels have already moved many applications offsite, where they may be operated by brand or corporate data centers, application vendors, hosting centres, or third-party providers. But other applications require substantial bandwidth on the local area network, or need redundancy and reliability

that may not be fully supportable on a wide area network. More and more of these applications will move "up-network" as bandwidth becomes more available, less expensive and more reliable. The day will likely come when few if any applications need to be deployed and supported at hotels, paving the way for substantial cost savings.

How Much Bandwidth is Enough?

Hotels often wonder if they will ever see the day when Internet bandwidth is no longer an issue, because it is sufficiently available and cheap. The answer is probably yes, but not anytime soon. Certainly in the long run, we can expect bandwidth to be available like electricity, on demand. Like electricity, it will come at a cost, but we will not be complaining that we cannot get enough. As with electricity, hotels can evolve strategies over time to limit their cost exposure by managing demand.

But for the next several years at least, bandwidth demand will continue to grow, and many hotels will be challenged to keep pace. Growth in guest bandwidth demand will be driven primarily by video streaming, since high quality video requiring 50 to 100 times the bandwidth of audio applications (such as voice over IP), and since other guest applications are less sensitive to real-time bandwidth availability. Administrative traffic can also be a significant contributor to requirements, especially if a hotel has moved major applications offsite. But with the heaviest demand coming either during the business day when guest usage is light, or schedulable for off-peak hours, administrative bandwidth can generally be managed to minimize any impact on peak-hour bandwidth needs.

Video streaming is therefore the main driver of bandwidth growth. More and more entertainment content is being made available for streaming, meaning that a growing proportion of the content that guests want will be available on (and often *only* on) the Internet. High-definition content is gradually replacing standard definition, and brings with it a significant incremental bandwidth requirement. 3-D content, still in its infancy, will continue this trend. And the multi-tasking nature of Generation Y and the Millennials will mean that the standard of "one video stream per room" will change to two, three, or more over time, through a combination of multi-frame technologies (e.g. picture-in-picture) and proliferation of fixed and mobile display devices.

The emergent of IPTV systems accelerates this trend, but does not cause it. IPTV systems enable guests to have easier access to Internet content through a traditional TV-set-like device, but the content itself may be little different than what they can already get on their laptop, PDA, or on an Internet-enabled television set.

The Hotel Owner's Perspective

The ability to provide enough bandwidth will continue to become an ever-more critical guest satisfier and point of competitive differentiation for hotels over time. It will also become more and more important to meeting planners, as meetings take greater advantage of the virtualization opportunities that bandwidth enables.

Of course, not all guests or meeting planners are willing to pay for the maximum amount of bandwidth, just as not all customers are willing to pay for high thread count, full-service breakfast restaurants, 42" flat-screen TVs, or any other amenity.

Just as with every other product offering, hotels will be challenged to find business models for bandwidth that provide their target customers with the level of service they need at a price they find attractive.

Getting the bandwidth will be competitively critical, but the impact on the bottom line has to be positive. While costs of bandwidth are likely to decline for hotels as they have in the residential market, bandwidth will never be free. Hotels need to think about how they will cover the costs as of growing bandwidth requirements. Different models may be appropriate based on market position, geographic location, cost structure, and customer expectations. Whether a hotel builds the cost into the room rate, charges a flat usage fee, assesses a surcharge for higher bandwidth, or uses a combination of these or some other model, ownership needs a clear understanding of what the bandwidth requirements are and how they will be funded over time.

The other important task for the owner is to ensure that the hotel's internal networking infrastructure will support future requirements, and be able to deliver the external bandwidth to your guest rooms, meeting space, and administrative areas. While there are many valid approaches, including ones that may be able to leverage legacy telephone or coaxial cabling, it is well worth consulting an experienced network design company or consultant before any network upgrades, major bandwidth expansions, or renovations.

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